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and the stimulus given to the trade and industry of the island rendered the war, in its ultimate results, a benefit rather than an infliction to the inhabitants themselves.

It is almost needless to observe that the progress of the civil war, and the vicinity of Chusan to Nanking (the most likely seat of government for a possible Chinese dynasty) are circumstances which may bring this important and highly-favoured island into very prominent notice.

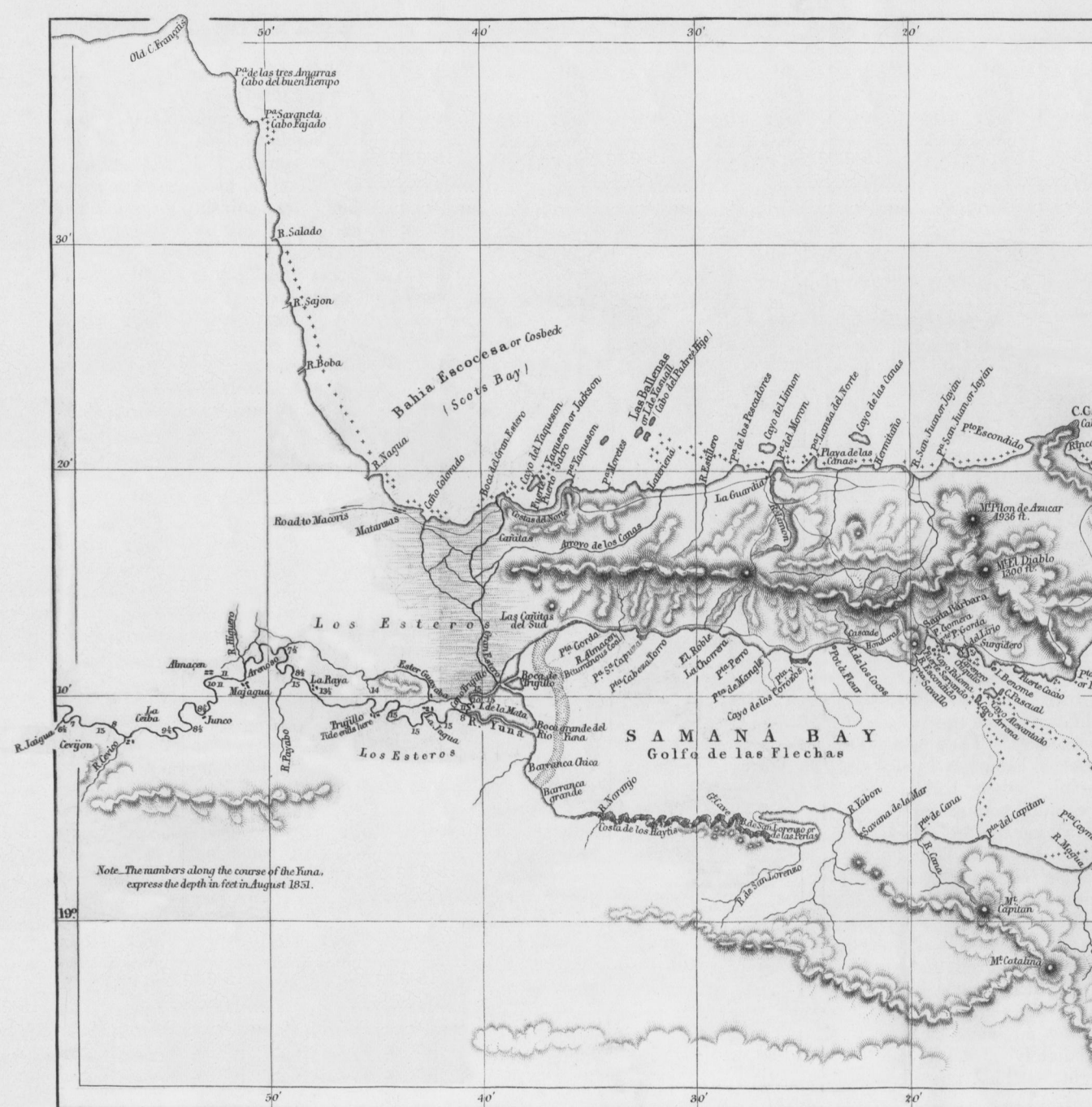
XXI.—*The Peninsula and Bay of Samaná, in the Dominican Republic.* By Sir R. H. SCHOMBURGK, H.B.M. Consul at the Dominican Republic, Corresponding F.R.G.S., &c.

Communicated by the FOREIGN OFFICE.

Read June 13, 1853.

History.—Columbus, returning to Spain after his first discovery of the New World, passed, on the 12th of January, 1493, a high and beautiful headland, to which he gave the name of Cabo del Enamorado, or the Lover's Cape (at present called Cape Cabron). Further eastward he saw another, which he named Cabo San Feramo (at present known as Cape Samaná), the most eastern point of the so-called Peninsula of the same name. Doubling this headland, he saw a fine gulf of such an extent before him that he supposed it to be an arm of the sea, separating Hispaniola from some other land.

Here he anchored, and having sent his boats ashore, they were received by natives, who, from their ferocious looks and undaunted manners, appeared quite different from the mild and pacific people the Spaniards had hitherto met. They were of a ferocious aspect, and had painted themselves hideously in various colours. Some were armed with war-clubs, others had bows of more than a man's length; their arrows were pointed with hard wood or with bones. One of their number having ventured on board, Columbus was induced to suppose him to be of the Carib tribe, and resolved to act with caution, and, having regaled his visitor, he sent him on shore; but, as the boat approached the land, upwards of fifty armed savages rushed from an ambush. They were appeased by the warrior in the boat; and, having landed, the boat's crew mixed with the natives and endeavoured to bargain for some of their weapons, when, in an unexplained manner, mistrust arose; the natives seized their bows and clubs, and provided themselves with cords, as if they intended to capture their visitors. The Spaniards immediately attacked them, wounded two, and put the rest to flight. "This was the first



contest with the Indians, and the first time that native blood was shed by white men in the New World," says the historian of the Life and Voyages of Columbus. Alas! how many streams might have been filled, ere the century closed, with the blood of the unfortunate natives that fell victims to Spanish cruelty! Columbus was greatly grieved when he learned the accident: his endeavours succeeded in re-establishing a good understanding; and the Cacique who governed over this people, called Ciguayens by Columbus, came afterwards on board the admiral's ship, where his frank and bold manner won him many admirers. His name was Cayacoa (and not Mayobonex, as supposed by Washington Irving). After his death, his widow became a Christian, and was baptized under the name of Doña Ines Cayacoa. The Indians called the land Samaná; and Columbus gave to the bay the name of "De las Flechas," in consequence of the skirmish with the natives. He sailed before daylight on the 16th of January, and landed on the coast of Portugal on the 4th of March, 1493.

Bertrande d'Ogeron, the governor of Tortuga, having been shipwrecked in 1673 on the N. coast of Portorico, the Spanish Government, mistrusting the shipwrecked crews, sent orders for them to be carefully guarded. D'Ogeron succeeded, with three of his men, in stealing an open boat, in which he made his escape to Samaná. He found here, to his astonishment, French Buccaneers, who assisted him, and afforded him means for his return to Tortuga. D'Ogeron, contemplating revenge, and the liberation of his companions in Portorico, undertook an expedition to that island, which, however, failed; but on his way he put into Samaná for provisions and reinforcements.

These visits afforded Ogeron an opportunity of recognizing the superior advantages of Samaná. He concentrated the inhabitants who lived far apart from each other, and sent Mr. Jamet to take the command of the young colony. Père Duval was their curate. The new settlement flourished, and the young colonists felt only one want, namely, that of women; the scarcity of females obliging the greater number of the men to remain single, until chance furnished them with a remedy. D'Ogeron had caused a number of young women to be sent from France for his establishment at Tortuga. The vessel with them on board, from St. Malo, destined for Tortuga, was obliged by stress of weather to touch at Samaná, where such advantageous offers were made for them, that the master, instead of proceeding to his port of destination, disposed of the young ladies at Samaná.

The prosperity of the young colony increased rapidly, to the disadvantage of Tortuga. It raised at the same time the jealousy of the Spaniards, who considered the French as usurpers of their soil, and molested them whenever an opportunity offered.

M. de Pouançay, governor of Tortuga after the death of d'Ogeron, feeling the isolated position of the settlers, commanded them, in 1676, to abandon Samaná, and settle near Cape Français. The great fertility of the soil at Samaná, and the commodious situation of its magnificent bay, rendered the greater number unwilling to obey the governor's order, which disinclination was principally felt by the proprietors of the indigo establishments. At length, however; a tragic event settled this question. The Spanish inhabitants of the district of Cotuy planned an expedition against Samaná, the French colonists were surprised at night, and the greater number murdered. A few, that escaped, fled to Bayahá (now Fort Dauphin) and Guarico (now Cape Haytian); while others hid themselves in the fastnesses of the forests. These stragglers finally abandoned Samaná in 1700, upon the order of the French Government.

During the commencement of the eighteenth century the peninsula was neglected, until the Government of Spain directed a colony from the Canary Islands, usually named Isleños, to be sent thither. Don Francisco Rubio y Peñaranda, then governor of Santo Domingo, executed this order, and built a small town in 1756, the church of which was dedicated to Santa Barbara. A village, founded on the southern side of the bay, which forms a fine savana stretching to the shores of the gulf, received the name of Savana de la Mar.

The colonists had been provided with cattle and fowls; and hogs were found wild in the mountains. But such ill success accompanied the enterprise that these towns sank in a short time to inconsiderable establishments.

In 1763 Count D'Estaing, as Governor-General of Martinique, conceived the idea of inducing the Spanish Court not only to cede Samaná to France, but the whole "northern coast from Monte Christi to Samaná, a district including the fertile valleys of the rivers of Yaque and Yuna." * The negotiations, which had already considerably advanced, were suddenly broken off by the Court of Madrid. The limits between the French possessions in the west, and the Spanish in the east of Hispaniola, were settled by the Treaty of Limits in 1777, Samaná remaining in the hands of Spain.

When the insurrection of the slaves broke out in the French colony a number of planters and colonists sought safety in the Spanish territory. Some of these refugees settled in Samaná, where they combined with the remnant of the emigrants from the Canaries for agricultural purposes, and the fertile soil crowned

* M. Weuves, in his '*Réflexions historiques et politiques sur le Commerce de la France avec ses Colonies*,' published in 1780, observes that Hispaniola and Cuba furnish the keys to the Gulf of Mexico.

their endeavours with success. Coffee and cocoa plantations arose, and even sugar was cultivated.

The ideas already entertained by d'Ogeron of incorporating the Spanish portion of the island with the French, and which Count d'Estaing had afterwards revived, were realized by the Treaty of Basle, concluded between France and Spain on the 22nd of July, 1795. By the 9th Article Spain ceded to France the eastern part of the island of Santo Domingo, in consideration of the latter power giving up all her conquests in the Pyrenees. Several years having elapsed, Toussaint L'Ouverture, who then commanded as General in Chief of the French forces in Santo Domingo, marched upon the city of Santo Domingo, and insisted upon the execution of the treaty, by taking possession in the name of France of the Spanish territory. The Spanish colours were lowered, and the French tricolor waved, on the 27th of January, 1801, over the whole island. But the French Government mistrusted Toussaint, and the First Consul despatched his brother-in-law, General Le Clerc, with a fleet, consisting of upwards of 60 vessels, among which there were 36 of the first class to Santo Domingo. The formidable fleet having selected the bay of Samaná as rendezvous, entered it towards the latter end of January, 1802. When Toussaint received information at the city of Santo Domingo of the arrival of these vessels, he proceeded with all speed to Samaná; and when the sight of this grand fleet at anchor in that magnificent bay burst upon the black general he exclaimed to his staff—"Nothing is left to us but to perish—all France has come to Santo Domingo—she comes to revenge herself, and to annihilate the blacks—we must perish."

Samaná received a French garrison. The small town was fortified, and the principal points of the coast provided with defences. The prosperity of the inhabitants increased during the occupancy of the French. In 1808, when Napoleon usurped the throne of Spain, Asturia rose "*en masse*," and as the pulsations of that patriotic movement were likewise felt in Santo Domingo, the Supreme Junta of Sevilla confided certain powers to Don Torribio Montes, Governor of Portorico; who sent secret emissaries to Santo Domingo, for the purpose of exciting the Spanish colonists against the French, then still in possession of the city of Santo Domingo and Samaná. George III., by an order in council, dated 4th of July, 1808, made peace with Spain; and the British Cabinet having declared themselves willing to co-operate with the Spanish patriots, the Supreme Junta of Sevilla declared war against the Emperor Napoleon. The Spanish population of the eastern part of Santo Domingo, headed by Don Juan Sanchez Ramirez, formerly Commandant of Cotuy, rose against the French, and at the battle of Palo Hincado, Sanchez, the Patriot

general, beat the disciplined troops of the French general, Ferrand, who in disgust shot himself.

The city of Santo Domingo was now closely besieged. An English squadron, consisting of three frigates and two brigs, under the command of Captain Dashwood, was despatched from Jamaica, and entered the bay of Samaná on the 10th of November, where they captured five vessels, and having disembarked the marines, they scaled Fort Santa Barbara, and threw the guns down the hill on to the beach.* The French commandant, Castel, was obliged to surrender; and Captain Dashwood, having effected this, delivered the place over to the patriots, under General Sanchez, upon condition that the rights of the French inhabitants should be respected and their property secured to them. The population of Santa Barbara consisted at this period of upwards of 1000 souls.

The French were now reduced to the sole possession of the city of Santo Domingo, where they were closely besieged by General Sanchez, and an English squadron under Commodore Cumby. Some land forces, commanded by General Sir Hugh Carmichael, also assisted the efforts of the patriots. The combined forces obliged General Barquier, who commanded the French garrison after the death of Ferrand, to capitulate on the 11th of July, 1809, to General Carmichael, who took possession of the city. The Supreme Junta had proclaimed General Sanchez Captain and Intendent-General of the Spanish colony of Santo Domingo, and when General Carmichael evacuated the city, he delivered his authority over to him. By this event the whole of the former possessions of the Spanish Crown in Santo Domingo were restored to that nation; and the 8th Article of the Treaty of Paris expressly stipulated that "that part of Santo Domingo ceded by the peace of Basle to His Most Christian Majesty, should be restored to His Catholic Majesty in full property and sovereignty."

Samaná remained in oblivion until 1821. Excited by the previous movements in Mexico and Venezuela, Santo Domingo, the metropolis of the Spanish colony, declared itself independent of the Mother Country, the insurgents hoisting the Colombian flag, and giving to the new state the name of Spanish Hayti.

This dream, however, did not last long; General Boyer, then President of the Republic of Hayti, had long coveted the annexation of the eastern part; and having learned that the step taken there in declaring itself an independent state was not generally approved, he marched suddenly, in 1822, upon Santo Domingo. The new Provisional Government being little prepared for such

* The British vessels employed in this service were the frigates *Franchise*, *Aurora*, and *Dædalus*, and the Reindeer and Pert brigs. Several of these guns are still lying on the beach surrounded by a thick incrustation of sand and pebbles, cemented by oxide of iron.

an attack, surrendered to Boyer, who declared the eastern part annexed to Hayti, uniting thereby the whole island under one government.

Samaná was destined to see, in consequence of this movement, another French fleet anchored within its spacious bay.

Vice-Admiral Jacob, as I learn from the work of a late French author,* anchored within the bay of Samaná, in March, 1822, with 11 vessels and 1200 troops, the latter under the command of Colonel Barré. General Donzelot, who then governed Martinique, fitted out this expedition, and a detachment of troops were disembarked at Savana de la Mar, where they entrenched themselves. President Boyer now sent one of his aides-de-camp to inform the Commander-in-Chief of the French squadron that, if the troops under his command committed any hostile act, every Frenchman still residing within the Haytian Republic would be massacred.

A few days after this communication the admiral's ship having weighed her anchors, departed, and the remaining ships soon followed.

The eastern part of Santo Domingo continued under the Haytian Government for 22 years, until the Dominicans, finding the yoke insupportable, rose in the metropolis on the 27th of February, 1844, overcame the Haytian garrison, and declared their independence, under the name of the Dominican Republic, with the motto of "God, our Country and Liberty."

Great Britain was the first Power to acknowledge the Dominicans as a free and independent nation, and entered in 1850 into a formal treaty with them. France and Denmark have since followed this example; and although the Emperor of Hayti, Faustin I., better known under the name of Soulouque, has not yet recognised the Republic, there exists every hope that, through the mediation of powerful nations, he will soon be induced to do so.

These historical remarks, although they occupy several pages, have been requisite, in order to give some general idea of events intimately connected with the Peninsula of Samaná, and essential in showing its importance. I shall now endeavour to give a description of its geographical and physical features.

Geography.—At the north-eastern point of the Island of Santo Domingo, which Columbus called Hispaniola, or little Spain, stretches a narrow tongue of land for 32 miles due E.; the most eastern point being known as Cape Samaná or Cape Rezon, called Cabo de San Feramo by Columbus. This tongue is delineated in ancient maps as an island, showing a communication at its

* Saint-Domingue, Etude et Solution nouvelle de la Question Haytienne, par M. R. Lepelletier de Saint-Remy. Paris, 1846. Vol. ii. p. 248.

neck, or narrowest western part, between sea and sea, but in later times the existence of such a communication has been disputed. The best proof of its existence, however, is, that in the commencement of this century the flat-bottomed boats of Samaná, which carried on commerce between the so-called peninsula and the northern ports of Porto Plata, Montechristi, Guarico, &c., *passed through* the Gran Estero, one of the numerous channels by which the narrow neck is interlaced, being a shorter route, to gain the sea on the N. side, and principally thereby to avoid the stormy seas off Cape Samaná and Cabron. This channel is at present filled up with sand, but could be easily re-opened, and afford a passage to boats from the bay of Samaná to the sea on the N.

The isthmus is low; the mountain-chain of Montechristi ceases suddenly on approaching it, and rises again on the eastern bank of the Gran Estero, favouring by its structure the idea that Samaná was once an island detached from Santo Domingo.

I have already observed that its whole length is, from W. to E., 32 miles. The low, swampy land near the isthmus is about 5 miles wide, having its greatest breadth between Punta Balandra and Cape Cabron, where it is 11 miles across. Samaná is traversed by a central chain, rising highest at its eastern part. The Sugar-loaf Mountain near Cape Cabron is 1936 feet high, and La Montaña del Diablo, 1300 feet.

I have calculated the area of Samaná at 225 square miles, and its circumference, following the sinuosities of the bays, at 95 miles.

The beautiful bay, which so much attracted the attention of Columbus, and appeared to him like an arm of the sea, opens between Cape Samaná on the N., and Cape Raphael on the S. The distance between these two points is 21 miles N.W. $\frac{3}{4}$ N., reckoned from Cape Raphael.

The bay extends 30 miles to the mouth of the Yuna, one of the largest rivers of the Republic, which flows into it at its western bight. The breadth of the bay has been greatly over-rated. It may be reckoned 8 miles from Samaná to Savana de la Mar. At a distance of 10 miles to the westward of Cape Raphael commences, near Punta Jicaco, a reef, which stretches, more or less interrupted in its continuity, north-westward to a number of islets and rocks, called the Cays Pascual, Alevantado, and Arena; better known under the name of the Banister Cays, or, likewise, Los Cayos Alevantados. The reef continues from thence, more or less interrupted, towards Punta del Capitan, which forms the western point of the Puerto de los Colorados of the old Spanish charts.

This formidable reef, which in some parts of its structure has the appearance of a barrier reef, protects the basin of the gulf

against the heavy seas, which otherwise every gale from the N. and E. would send into it. It has, however, its disadvantages also. The passage for vessels is contracted to a mile in width between Punta Cacao and Cayo Pascual, and is moreover impeded by a shoal with only 24 feet water over it, lying N.W., 6 cables' length from the northern point of Cayo Pascual, which renders it hazardous for vessels of large size leaving with the prevailing sea-breeze. It is therefore advisable to stand out to sea with the land-breeze only.

These dangers have often proved fatal to navigators. Spain here lost in 1724 two galleons, La Guadeloupe and La Tolose, each of 70 guns, under the command of Don Balthasar de Guevara; and the French 74-gun ship, Scipion, after a running fight of 8 hours with the London, 98, and Torbay, 70, attempting to enter English Harbour near Punta Jicaco, struck, and was totally lost. Her consort, the frigate Sibylle, escaped.

The bay of Samaná, *within the reefs*, offers shelter for the largest fleets. As already observed, the French fleet of Admiral Villaret-Joyeuse, with the army under the command of General Le Clerc,* was safely anchored here. Besides the principal bay, it has several lateral anchoring places, or "Surgideros," among which the Bahía de San Lorenzo, or "de las Perlas," on the southern shore, may be mentioned.

The first port after having passed Cacáo, which is a rocky bluff, with a fort on it, and after having cleared the Cayos Alevantados, or Banister Cays, is the Surgidero del Carrenero chiquito. A reef extends from Punta del Lirio, its western point, and narrows the entrance. Between Punta del Lirio and the point of the fort of Punta Gorda is an anchoring place for small vessels. Four cables to the W. of Punta Gorda lies the most eastern of three small cays, called Cayo Paloma, or Pigeon Cay, with a reef on its western point. Between this and Punta Gorda is the entrance to Port Santa Bárbara. The islet next to Paloma is called Carrenero Grande, which has a battery, called Fort Servante, upon it. The passage is further contracted by a reef, which extends from Cayo del Carrenero Grande northward, and another off Punta Gomero; but these obstacles once cleared, the Port of Santa Bárbara is very safe. A vessel may lie close to the shore, and be repaired or careened with facility.

The vast sheet of water which expands between shore and shore offers good anchorage in most of its parts. From Punta and Isla del Corozo extends a reef and shallow S.S.E., about 6 miles, and another from Punta del Mangle, in the same direction.

* Napoleon's sister, Madame Le Clerc, and younger brother Jerome, were on board of this fleet, the latter to commence his naval career.

The bay, of which Punta del Corozo forms the western point, and Punta del Mangle the eastern, affords an excellent harbour. Punta del Corozo was formerly known under the name of Punta Martiniqueña. The airy situation of this point, which projects considerably to the S., and its springs of fresh water, render it, no doubt, more preferable for the site of a town than where Santa Bárbara is now situated. The French were sensible of this local advantage, and had in contemplation to found here the town of Napoleon, and the ground was laid out for this purpose; but before the plan was executed they were expelled from Samaná.

The Spaniards had near Punta Gorda, where the small brook Almacén flows into the bay, large warehouses. The produce of the country was brought down the Yuna, and stowed here until the Spanish vessels arrived to take it off from the commodious bay near Punta Gorda.

The principal mouth of the Yuna lies S.W. $\frac{3}{4}$ S., $5\frac{1}{2}$ miles from Punta Gorda. This river rises in the central mountain-chain, on the highest peak of the Cibao, and having passed close to the town of Cotuy, receives on its left side the Camu. The flat-bottomed boats of the Spaniards ascended to the junction, and even to Angelina, a farm on the right bank of the Yuna, several miles above the place where the Camu joins it. At present it is navigable for boats drawing 4 to 5 feet water to the junction of the Quaba, or rather where this tributary of the Yuna is joined by the Jaigua. I embarked here in August, 1851, and sounded the Yuna to its entry into the bay of Samaná. I found the lowest water near the Chorero and near the river Yáya, where there were only from 6 to 7 feet.

The banks of the Yuna are highly fertile, but want cultivation. There are occasionally houses and plantations to be met with, but only few and far between. The greatest plague of these habitations are the mosquitos, which, in consequence of the low banks and stagnant waters, are here in swarms.

About 23 miles from the mouth of the Yuna, on the left bank, is a settlement called Almacén, where the Spanish Government had warehouses to store the tithes of tobacco and other produce of the fertile valley of La Vega-real, and from whence they were sent to the Almacén of Punta Gorda. The lowest water from the mouth of the Yuna to Almacén was, in August, 1851, $9\frac{1}{2}$ feet. The tide extended at that period to Trujillo, a hamlet on the right side. The banks here become low, with many esteros or lagoons, and about four miles from the point where the Yuna enters the bay it throws off a branch on its left side to the N.E., while the main branch continues E. by S. The stream ran here with a swiftness of 4 miles per hour, and rendered the utmost skill necessary to prevent the boats from

coming in contact with the numerous snags that impeded its course. The small arm to the N.E. is called Caño Trujillo; and it has a communication on the left bank by means of the Guayába with the esteros that extend to Almaçen. At a short distance from where the Trujillo enters the bay it extends a branch to the N.; this is the Boca del Gran Estero, by which, as already observed, boats could formerly proceed to the sea on the N. side without rounding Cape Samaná. The entrance is now overgrown with mangroves. I found only 3 to 4 feet water, while in the Caño Trujillo, near the Gran Estero, I could find no bottom with a 15-foot line. The Caño Trujillo flows about 2 miles to the N. of the principal trunk of the river, in three branches, into the Bay of Samaná.

Unfortunately for the navigation of this fine river, a shallow sandy bar, with only $2\frac{1}{2}$ to 4 feet of water over it, barricades the Yuna and its Caños. There are, moreover, heavy rollers upon it during a strong breeze. This difficulty might be overcome by the help of engineering skill, and the Yuna rendered navigable for steamers as far as the confluence with the Camu.

The advantages of this river, as a high-road to the fertile districts of La Vega and its pasture-grounds, to the mineral district of Maymon, and the pine-forests of the Cibao, are incalculable.

Turning from Boca de Yuna to the southward, we meet the Barranca Chica and Barranca Grande; both anchorages at present are not used. The Naranjo here enters the Bay of Samaná, passing under a hill of calcareous rock, through which it has pierced its course. Proceeding eastward from the Barranca Grande, the coast is iron-bound—that is, it consists of calcareous hillocks and rocks—permitting no approach to the shore. This part is called the Coast of Haitis (Haiti being the Indian name for hill), and extends to the Bahía San Lorenzo. A description of this very remarkable part will be given under the geology of this district.

The Bahía de San Lorenzo, or De las Perlas, forms an excellent port, perfectly land-locked and safe. From its eastern point a shoal stretches about half a cable's length out; the entrance has, otherwise, from 18 to $6\frac{1}{2}$ fathoms water. It is not, however, advisable to anchor at a great distance from the entrance, although this handsome and extensive bay stretches a great distance E. by S., and affords sufficient depth for nearly a mile. The course out of the bay is W. by N.

Four and a half miles farther to the E. is the mouth of the river Yabon, and one and a half farther on, the village Savana de la Mar.

The bay in front of Savana de la Mar is shallow, and does not permit large vessels to anchor close to it.

The Port de los Colorados was formerly resorted to; but it is now called Puerto de la Punta del Capitan, from a high mountain which bears that name, from the side of which a rivulet flows into the bay. Further eastward is the Rio Magua and the Rio de las Culebras, or Snake River. The latter is merely an inlet winding between numerous mangrove bushes, and communicating with the Jayan. Punta de Mangle (Punta del Manati of the old charts) is the most northern point on the S. coast, Cape San Rafael excepted. A fine bay here opens by doubling this point, in which El Morro Gordo attracts particular attention, being a rounded hill projecting into the bay, and connected with the coast by a narrow neck. To the S.E. of it is Puerto Jicaco, called in the old Spanish charts Puerto de los Ingleses, or English Harbour. It is protected by a reef, having two passages. The appearance of this reef, chiefly at the S.E. of Punta de Mangle, is very peculiar, and resembles a barrier reef. The Morro Gordo has several houses on its summit, from which the view is very interesting.

Some miles further eastward is the mouth of the Yeguada, and beyond it the Hobero, which, I understand, is merely an eastern branch of the Yeguada. A road leads from La Yeguada, between the mountains Corcovado and Haitis, over the central mountain-chain to Seybo, the principal town of the province of the same name. The highest pass, El Tocon, is, according to my observations, only 1500 feet high; the ascent, nevertheless, is very difficult. There is a weekly communication by a post-boat between Hobero and Samaná. Passing the mouth of the river Guanábo, we arrive at Mount Redondo and Cape San Rafael. This is a tongue of land stretching E.N.E., from the midst of which rises the Redondo, or round hill, an excellent landmark for mariners.

The bay of Samaná and its shores having been described, it remains to say a few words of the eastern and northern coast of the peninsula. Rounding Punta Balandra, the southernmost point, we arrive at Puerto Frances, or French Harbour, seldom visited by vessels. Having doubled Cape Samaná, and passed Madamitas, we come to Las Galeras, where a vessel may anchor under the lee of a small islet. Rincon, further northward, under Cape Cabron, is greatly filled with reefs. Doubling Cape Cabron, we arrive at Puerto Escondido, called in the French charts Porte Petit Gosier, which is sometimes visited by small coasters. A short distance from thence is the mouth of the San Juan, properly Jayán, the largest in Samaná, and which is very difficult of access. A vessel while at anchor here is exposed to all winds.

Hermitaño is equally difficult of access; but an islet lies in front of it, surrounded with reefs.

The Limon, next in size to the San Juan, opens into the sea

about 7 miles to the W. of the latter. Here the different routes of the peninsula, leading to Matanzas, Macoris, &c., unite in one. On the left bank of the Limon is a military post.

Punta de los Pescadores and Boca del Astillero are good anchorages for coasters during calm weather; but Lateriena and Punta de Moretes are dangerous, in consequence of numerous reefs. Indeed, the only good port on the northern coast is Port Yaqeson (Jackson), where vessels of large size lie under the lee of a small cay, that protects the anchorage. A short distance further northward is Boca del Gran Estero, the northern outlet of the communication by the Caño Trujillo with the western bight of the Bay of Samaná.

Port Jackson has been called the key of the N. coast of Samaná, and a single man-of-war stationed here would command the only passage of communication with Samaná by land from the Cibao. From Port Jackson a number of hills along the coast extend to the eastward; they are not high, but rugged, and the road over them leads towards Boca Limon. When Santo Domingo was under Haytian government, General Borgela gave orders to form another road inland, starting from Gran Estero, and leading to the Cañitas on the S. side of Samaná—as, should a foreign war break out, an armed vessel at Port Jackson could prevent all communication between Samaná and the rest of the island; but the difficulties proved too great for the Haytians, and the works, though commenced, were discontinued.

El Gran Estero may be taken as the western limit of the peninsula of Samaná. A small village, called Matanzas, lies 2 miles further to the W., on the coast of the Bahía Escocesa, likewise known as the Bay of Cosbeck, the latter probably a corruption of Scot's Bay.

Geology.—We have observed that a central chain traverses the peninsula from west to east. This consists chiefly of mountain limestone, schistose rocks with veins of calcareous spar, sandstones, &c.; quartz occurs frequently, and at the eastern end there are mica slates. The shores exhibit shelly conglomerates belonging to a recent period, the dip being to the S. of W. under a low angle. The fossil shells which I found belong to a recent period, consisting chiefly of strombus pugilis, accipitrinus, bitupercluris, murex calcitrapa, ponicum, &c. Near the rivulet Almaçen are large veins of bituminous coal, which are likewise met with further to the eastward. The layers are horizontal, the direction E.N.E.; but, as far as investigations have hitherto been carried on, the coal is too bituminous to be employed in steamers. The experiments not having been followed up with even common energy, it is impossible to pronounce a decided opinion upon this subject. I do not think, however, that in any of the localities where the coal is

found excavations to a depth of 10 feet have been made. The geological structure of the country does not preclude the possibility that coal of a good quality may be found below. The fallacy of the opinion, entertained by some geologists, that no good coal could be found within the tropics, has been established by the excellent mineral of that kind, recently discovered near Acapulco, which is more than 2° farther S. than Samaná. The advantages which the discovery of good coal would confer upon the Dominican Republic are of such vital importance, that nothing but the supineness of the Spanish race, still more innate in the Creole than in the inhabitants of the Mother Country, can explain why investigations have not long since been made.

Coal is not the only mineral which is produced in Samaná; copper and gold, the latter in small quantities, have been met with, and it is even asserted that platina has been found. Iron-ore is frequent; nevertheless, the most important feature in respect of minerals is the probability of the existence of serviceable coal-fields.

Calcareous rocks form the prevailing feature in the geological structure of Samaná. They rise to high pinnacles, engulf rivers, or communicate their chemical elements to their waters, which, in falling over banks and ledges, encrust vegetable productions with a thick coating. The Chorera, near Punta de Terro, exhibits this in a remarkable manner. The rivulet falls over a ledge into the bay, and the banks being overgrown with mangroves, the long branching air roots of that tree (*Rhizophora mangle*) are entirely incrustated with calcareous matter. Another rivulet, the Coco, tumbles over a precipice nearly 100 feet high. It contains lime in solution, but the rocks over which it falls are schistose, traversed by quartz veins. This cascade is highly picturesque, and the way to it overland through Honduras highly interesting. On a hill close to the cascade I found splendid clusters of crystals of selenite.

But the most remarkable feature of the limestone formation is seen at the Haïtis of the bay of San Lorenzo, the Bahia de las Perlas of Columbus. After having passed the rollers at the bar of the Yuna I saw, at a distance of 7 to 8 miles, a number of insulated hills, resembling conical beehives, placed close to each other. By means of my glass I observed that they stood isolated, sometimes fronted by sharp rocks, against which the sea raged furiously. Not having before heard of them, my curiosity was greatly raised as to their nature, and I learned from the pilot that they bounded the Bahia of San Lorenzo.

I visited the bay on the 9th of August, and coming round the eastern point, a large number of isolated hillocks of a conical shape, from 80 to 150 feet high, were before me, generally

denuded of vegetation to a height of from 10 to 20 feet, from thence partially and sparingly overgrown with plants to the top. To the traveller among the native tribes of Guiana the appearance of a Macusi or Wapisiana village seen in the distance will give an idea of these hillocks.

The action of the sea has partially undermined many; others contain caverns, two of which I will attempt to describe. The first is to the S.W. from the entrance of the bay. The visitor lands on a sandy beach, where the presence of a few cocoanut-trees strikes him with wonder as to how they came there. This cavern is about 15 feet above the sea, but not of sufficient grandeur to cause great interest. We next proceeded to the great cave, round the western point of the bay. The conical hill which contains this cavern is somewhat difficult of access; but we climbed up amidst the spray of the sea. The entrance to the cave is from the N., and is about 60 feet in height. While stepping over its precincts I saw to the E. a high stalagmite figure, to which imagination could easily give the shape of an Achilles standing on a pedestal, bidding defiance to intruders. On the western side, likewise on a pedestal, appeared a gazelle. I could not measure the Achilles, but the concretion of carbonate of lime which composed the latter was $20\frac{1}{2}$ feet in height. The roof of the grotto is ornamented with numerous stalactites, and is in its highest part about 70 feet from the floor. The cavern containing these two figures is from E. to W. 150 feet in extent. There are excavations or reservoirs in it, with a large quantity of fresh and delicious water. A small opening leads to a side cave, with a concretion or mass, resembling a sarcophagus covered with a pall. Where this cavern opens to the light a large fig-tree has sent its gigantic roots to the floor of the cave.

On the S. side of the great entrance the rock is covered with a greyish coating as if a veil had been spread over it. The listener hears, inside the wall of the cavern, water dropping steadily and uniformly, causing a sound like the pendulum of a clock. A narrow dark entrance admits to a second large cave. It was tenanted by a multitude of bats, which encircled us intruders in rapid flight, coming nearer and nearer, so that we had at last to defend ourselves and prevent the torches being extinguished. Another lateral excavation descends towards the sea, from which, during stormy weather, large quantities of driftwood is washed up.

These caverns were in former times resorted to by the aborigines, and we learn from writers contemporary with their discovery that the Indians had great veneration for caverns, where they adored their gods, and believed that mankind was first created and then issued from them. The sun and moon came likewise out of a cave called Tovobaba. I discovered on some of the rocks in

the large grotto Indian figures carved in the rock, and also large heaps of shells, almost exclusively of the *strombus pugilis*, with a few *turbinella pugilares*, *avicula*, and *ostrea*. It is almost impossible to give an idea of the quantity of these shells. Tons of lime have already been carried away by the inhabitants of the neighbourhood: the streets in Savana de la Mar have been paved with them, and still there are immense quantities remaining in the caves we visited. Although no less than three centuries must have elapsed since these shells were thrown into these heaps, the greater number still possess their vivid orange colour near the columellar lip, as if they had only been taken yesterday from the sea. This refers likewise to the *avicula* still attached to the branches of the mangle tree. The latter species of shells seems to have existed in large quantities in the bay, from which circumstance, no doubt, the Bahía de San Lorenzo was formerly called the Bay of Pearls.*

From the excavation which I called the sarcophagus room a small opening leads to another cave, with a hole about 20 feet in diameter admitting light, from which, to the southward, is another large dark cave, with heaps of shells, among which I found a piece of urn-shaped pottery, a valuable relic from the Indians. The opening in this terra cotta ornament makes me believe that it was used as a musical instrument, for which object a long reed was probably introduced into it. A similar instrument, but with a calabash instead of pottery, is called by the Indians in Guiana "Couti and Tsapupu."

These caverns may have been used as a retreat, or at certain times as places of assembly, or for religious rites, by the aborigines, hence the enormous quantities of shells, which they probably collected in the gulf. I am assured by the fishermen, that this shell (*strombus pugilis*) is now extinct in the bay.

It must be noted that these caves are all in one of those remarkable conical hills of limestone, having the character of a recently-formed rock, containing fragments of shells and other organic bodies.† The rock shows evident marks of having been subjected to extreme heat. Here it looks like red bricks; there it is crystallized, or seems to contain flakes of felspar; in other places it is simple limestone. Igneous causes, earthquakes, and the formation of monticules during such catastrophes, mud volcanoes, like those at Bakú, in the province of Shirwan, on the Caspian Sea, where clay replaces lava—seem to me the only phenomena that can explain the production of these conical mounds,

* Specimens of these shells have been sent to the British Museum.

† Large specimens of this rock, numbered 54 to 57, have been sent to the British Museum in my series of geological specimens from Santo Domingo.

which contain *no traces of lava, pumice, or scoria*, as far as I have been able to examine them,* but my visit was too short to permit me to institute accurate examinations. I have reason to believe that these conical hills extend in a S.W. direction over a space of 10 miles towards Boya.

Evening was already approaching when our boats left the Haïtis; the waves, moved gently by the breeze, beat into the excavations under the Haïtis, and produced a mourning sound, which imagination might have ascribed to the lamentation of the ghosts of the departed Indians, wailing their misfortunes, and their annihilation by the white race.

Productions. — The soil of Samaná is highly productive, which is shown in the gigantic trees which still cover the hills that extend towards the sea-shore. The sides of the mountains have been only partially cleared, and cultivation has only commenced its inroad on the great primeval forest. The mahogany, or *caoba*, as it is here called, deserves to be first mentioned. It is an article of spontaneous growth, and constitutes the greatest export. There are still a number of these trees to be seen in the mountain forests, promising employment and profit for years to come. Espinillo, caya, cavima, &c., are some of the other forest trees for cabinet-work. Roble and asaroble-wood are fit for naval architecture, and indeed vie in quality with the mora, or green-heart of Guayana.

The capá is particularly suited for the bottoms of vessels, and is almost impervious to worms.

Lignumvitæ and fustic are likewise to be met with.

When the Flibustiers from Tortuga first settled at Samaná they cultivated principally indigo. Cacao, cotton, and roucou were indigenous, and coffee-plants were introduced in the 18th century from the French colonies. This plant thrives uncommonly well, and the quality of the coffee at Samaná is excellent.

I am persuaded that the coffee of Samaná would vie with the best Martinique or Jamaica, but at present only vestiges of the former plantations are to be seen. The present inhabitants are satisfied with cultivating yams, batatas, Indian corn, and fruits, principally oranges, mangos, alligator-pears, cocoa-nuts, &c. The luxuriant appearance of the fruit-trees struck me forcibly during my visit. It was at the period of the mango season, and the trees were loaded with them. They were, however, of so little value, though the majority of the trees were of the superior species

* Among the fragments thrown out from Graham Island were dolomitic limestone. Leopold von Buch found the old lavas of Lancerote covered by a thin stratum of limestone, from an inch to two feet in thickness, being of a hard stactitic nature, and containing fragments of terrestrial shells. The rock of the Haïtis may have a similar origin.

called the peach-mango, that even the frogs seemed satiated, and left them in numbers to rot under the trees.

The yams of Samaná are superior to any other in Santo Domingo, and are sold at Samaná at $1\frac{1}{2}$ to 2 dollars per barrel.

The bay of Samaná abounds with fish. The whale visits it in spring in large numbers. The coast near the Yuna abounds in oysters, among which are likewise found species of the genus *avicula*. Aquatic birds visit the bay and the Esteros in large flocks, principally flamingos, spoonbills, the scarlet ibis, the pretty egret or garza (*ardea candidissima*), snipe (*scolopax gallinago*, Linn.), sarapicos (*tringa* and *totanus*), gallitos (*parra jacana*), gallinuelas (*rallus* spec.), gallaritas (*fulica leucopygia*, Wag.), and other gallatores. Of *palmipedes* there are at least ten species, but principally and foremost is the delicious yaguaza (*anas arborea*, Linn.), which abounds along the banks of the Yuna.

Population, &c.—Although nature has done so much for this tongue of land, man inhabits it but sparingly. We have seen that Columbus found at his first visit to Samaná a large tribe of warlike Indians of ferocious aspect and hideously painted. He and his companions took them to be a branch of the dreaded nation of Caribs.

The quantity of broken pottery found in various situations at Samaná, proves that it was once thickly peopled.*

I have already alluded to an interesting Indian relic found at the great cave of San Lorenzo; but the most remarkable specimen of the antiquities of the natives is the head of an Indian, sculptured out of hard trappean rock, which was found near Cabron, where the formidable Mayobanex, Cacique of the Ciguayens, is said to have had a residence. This relic, measured round the ears, is seventeen inches in circumference, and weighs above ten pounds. It represents in its flattened forehead and harsh cheekbones the typical feature of the Aymaras of the province Muñecas.

The present population consists partly of the descendants of the Canarians or Isleños, of French refugees from Hayti, of Creoles from the same part, and of Spaniards from Santo Domingo. In 1824, another element was added to this mixed population in some coloured *free* people, who emigrated from the United States when Boyer was President of the Haytian Republic, and settled at Samaná and other places. When the Dominicans declared themselves independent of Hayti, a large number left the penin-

* Broken pieces of terracotta are found in large heaps at various places. It seems they have been broken intentionally, as there is no evidence that the pottery was ever in use. These places were probably altars, and the terracotta heads and ornaments upon them are the remains of sacrifices. Some of these ornaments resemble occasionally the Egyptian.

sula, while the remainder continued, by their industrious and quiet habits, to enjoy the respect and consideration of the Dominican government. In taking a ride over the mountains to Honduras and to the mouth of the Coco, I was surprised at being accosted in three different languages by the people whom I met, namely, English, Spanish, and French. The latter distinguish themselves by the neatness of their habitations, the Americans by the cleanliness of their provision-grounds and their industry. In 1851 the population of Samaná was 1721, of whom about 300 were Americans and their descendants.

Samaná has its chief commerce with the Turk's Islands, which are barren spots without vegetation, and only famed for the large quantities of salt that they export. These isles depend principally for vegetables, cattle, and poultry, upon Samaná and Puerto Plata. Some mahogany and other woods are likewise exported from the peninsula. The small town of Santa Bárbara occupies the bight and acclivities of a bay which I have already described. It was founded in 1756, by Don Francisco Rubioy Peñarando, then Governor of Santo Domingo.

The church was originally built of stone, but is said to have been destroyed by an earthquake.

The town consists of about ninety houses and huts, and presents a complete picture of decay. The government-house, of wood with galleries, is the best building; besides this, there are two or three of a similar description; but the rest are buhios, that is, buildings, the sides of which are boarded with palmwood and the roofs covered with palm-leaves.

There is a Custom-house in Samaná, it being declared a port for imports and exports; but this is of very little importance where industry and population alike lack to call forth the advantages which a fertile soil and favourable situation afford.

On a small hill is seen a neat building of wood, behind which is another equally neat, but smaller. These are the Wesleyan chapel, and the temporary habitation of the missionary of the London Wesleyan Missionary Society, residing at Puerto Plata, but who occasionally comes here to administer religious rites to his congregation, which consists principally of American emigrants and their descendants. There is a school connected with this, over which a master presides, who, during the absence of the minister, acts in his stead.

During my stay at Samaná, I occupied the minister's house, and determined its position to be lat. $19^{\circ} 12' 30''$ N., long. $69^{\circ} 19' 18''$ W. Fort Santa Bárbara bore from here S. 55 E., distant about $\frac{1}{2}$ mile. The hill upon which the chapel stands is 45 feet above the sea. Santa Bárbara forms a kind of penal settlement for the Dominican

republic. There are a number of political and other prisoners exiled to Samaná, which circumstance requires it to be strongly garrisoned. The population, consisting only of 1721 individuals, has to furnish a garrison of 220 men. Santa Bárbara is defended by the fort of the same name, now mounted with three guns, two of 24, and one of 18 lbs. ; and Fort Libertad, which commands the former, has four guns, three of 18, and one of 8 lbs.

These two forts command all the approaches to Santa Bárbara from the land side, but the guns are by no means in good order. The entrance to the port is, moreover, defended by Punta Gorda, with two pieces of 24 lbs., well mounted, and by Fort Servando, which at present possesses no guns, those which were there having been transported to Fort Cacao.

Nature has done much for the defence of the entrance to the bay of Samaná. The reef stretches to the Cayos Alevantados, preventing the approach of a hostile force from the E. Opposite these Cays is a projecting, bold bluff, called Cacao, distant from the nearest Cay about a mile. Hence a strong water battery, erected at Pascual and Cacao, well mounted, would place any vessel attempting to enter under a destructive cross-fire. Fort Cacao is armed with 7 pieces, six of 24 pounds, and one of 8, of which, however, only four are well mounted.

The favourable situation of these Cays for preventing the approach of an enemy, was signally proved by Jack Banister, an Englishman and a celebrated pirate, at the close of the 17th century. He had arrived with a consort vessel, commanded by a Frenchman named Lagarde, at Samaná, and the commanders of two English frigates, having learned that Banister was anchored at Samaná, prepared to enter the bay. The pirate immediately had the guns of his vessels put ashore on one of the cays, and defended the entrance with the crews, consisting of 200 men, in such an effective manner, that he killed more than 120 of the assailants, and forced the frigates to retire. Banister's own ship was, however, disabled during the engagement ; and the smaller French vessel only remaining for embarkation, all rushed towards it, and a vast number were drowned, or perished in endeavouring to get on board. The cays have, in consequence, received the name of Banister.

The guard at the mouth of the river Limon has three pieces for defence—namely, one of 24, and two of 18 pounds ; these are, however, dismounted at present.

A perfect defence of the bay of Samaná would require the erection of a fortified position at the western point of Jackson and at Las Cañitas del Sud, or at the point E. of it, called Punta Gorda, near the river Yuna. Although the Haytians did not

succeed in re-establishing the communication by the Gran Estero, two companies of European Sappers and Miners would easily effect it.

I have purposely dwelt long and in detail upon this narrow strip of land, called the Peninsula of Samaná, and upon its adjacent magnificent bay. In its *geographical position* its greatest importance is centred. The fertile soil is fit for the cultivation of all tropical productions; its spacious bays and anchoring places offer a shelter to the navies of the world; and its creeks afford facilities for the erection of arsenals and docks, while the adjacent forests yield the requisite woods for naval architecture; still its chief importance does not consist in these advantages alone, but in its *geographical position*, forming, as it does, one of the principal keys to the isthmus of Central America, and to the adjacent Gulf of Mexico. Mr. Lepelletier de Saint Remy says, "Samaná is one of those maritime positions not often met with in a survey of the map of the world. Samaná is to the Gulf of Mexico what Mayotta is to the Indian Ocean. It is not only the military, but also the commercial key of the Gulf; but the latter is of infinitely greater importance under the pacific tendencies of European politics."

The bay of Samaná being placed to the windward of Jamaica, Cuba, and the Gulf of Mexico, and lying moreover almost due N.E. of the great isthmus which now so powerfully attracts the attention of the world, the French author, just quoted, may well call it "*la tête du pont*" to the highway from the Atlantic to the Pacific.